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In the Claims:

1. (Presently Amended) A battery comprising:

at least one group of electric power-generating elements each comprising at least a positive electrode, a negative electrode and a separator; and

a battery case containing said group of electric power-generating elements;

said battery case formed from a mixture including a matrix material selected from the group consisting of plastics, polymers, resins or combinations thereof;

wherein said mixture further includes a thermally conductive, electrically insulating material distributed throughout the matrix material, and said thermally conductive material has a thermal conductivity at least one order of magnitude higher than the thermal conductivity of the matrix material and said mixture has a thermal conductivity at least twice that of said matrix material.

2. (Original) The battery of claim 1, wherein said matrix material includes at least one polymer selected from the group consisting of polycarbonate, polyethylene, polypropylene, acrylics, vinyls, fluorocarbons, polyamides, polyolefin. polyesters, polyphenylene sulfide, polyphenylene ether, polyphenylene oxide, polystyrene, acrylonitrile-butadiene-styrene, liquid crystal polymers and combinations, mixtures, alloys or copolymers thereof.

3. (Original) The battery of claim 2, wherein said at least one polymer is a polyphenylene ether and polystyrene blend.

4. (Original) The battery of claim 2, wherein said at least one polymer is a polypropylene and polyphenylene ether.

5. (Original) The battery of claim 1, wherein said thermally conductive, electrically insulating material is distributed within the matrix material in a discontinuous manner.

6. (Original) The battery of claim 5, wherein said thermally conductive, electrically insulating material is a particulate or fibrous material.

7. (Original) The battery of claim 1, wherein said thermally conductive, electrically insulating material is distributed within the matrix material in a continuous manner.

8. (Original) The battery of claim 7, wherein said thermally conductive, electrically insulating material is a two or three dimensional mesh or matte.

9. (Original) The battery of claim 1, wherein said thermally conductive, electrically insulating material includes at least one material selected from the group consisting of calcium oxide, titanium oxide, silicon oxide, zinc oxide, silicon nitride, aluminum nitride, and boron nitride.

10. (Original) The battery of claim 9, wherein said thermally conductive, electrically insulating material is particulate boron nitride.

11. (Original) The battery of claim 1, wherein said mixture further including a reinforcing material to strengthen the polymer matrix.

12. (Original) The battery of claim 11, wherein said reinforcing material is in the form of fibers.

13. (Original) The battery of claim 11, wherein said reinforcing material includes at least one of glass, and inorganic minerals.

14. (Original) The battery of claim 11, wherein said reinforcing material is glass fibers.

15. (Cancelled)

16. (Presently Amended) The battery of claim 1 ~~15~~, where said mixture has a thermal conductivity at least five times that of the matrix material.

17. (Original) The battery of claim 16, where said mixture has a thermal conductivity at least ten times that of the matrix material.

18. (Presently Amended) A battery case comprising:

a lid and a container,

said lid and container formed from a mixture including a matrix material selected from the group consisting of plastics, polymers, resins or combinations thereof;

wherein said mixture further includes a thermally conductive, electrically insulating material distributed throughout the matrix material, and said thermally conductive material has a thermal conductivity at least one order of magnitude higher than the thermal conductivity of the matrix material and said mixture has a thermal conductivity at least twice that of said matrix material.